

NASA TECH BRIEF



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Solder Flux Leaves Corrosion-Resistant Coating on Metal

The problem: Formulating a soldering flux that leaves a corrosion-resistant coating on the metal surfaces surrounding the soldered part.

The solution: A soldering flux consisting of perfluoro octanoic acid hydrazide.

How it's done: The hydrazide is formed by adding hydrazine to an aqueous solution of perfluoro octanoic acid until a pH of 7 is indicated by methyl red. The hydrazide, which has the appearance of a white wax, is recovered from the reaction mixture by evaporation of the water.

The resultant wax-like material serves as an effective flux for lead/tin (60/40) solder on copper. After soldering is completed, the perfluoro octanoic acid liberated on the metal is washed off with water. The unreacted hydrazide remains as a tightly adhering film and protects the underlying metal surface against common corrosive agents.

Notes:

1. The hydrazide film was found to protect a copper surface from attack by 6 normal hydrochloric acid.
2. The flux is ineffective for soldering of aluminum.
3. Inquiries concerning this invention may be directed to:

Technology Utilization Officer
Jet Propulsion Laboratory
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Pasadena, California, 91103
Reference: B64-10206

Patent status: NASA encourages the immediate commercial use of this invention. Inquiries about obtaining rights for its commercial use may be made to NASA Headquarters, Washington, D.C., 20546.

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